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YEAR BOOK
OF THE
HEATHER
SOCIETY

1972



ROYAL BOTANIC GARDENS
KEW



THE HEATHER SOCIETY



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The Secretary's Report

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Two displays were put on at the Royal Horticultural Society's Hall, the second of which, on September 7th/8th, was outstandingly good, bringing great credit to the artistry and gardening skill of Brian and Valerie Proudley. The Heather Competition in the autumn has won its place in the R.H.S. calendar and for the first time figures in their Gardeners' Diary for September 5th/6th, 1972.

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In an effort to meet some of our Scottish members, the Committee agreed to ask Mrs Gordon Black, of Sheriffston Gardens, Elgin, to put on a display for us at the Royal Highland Show at Ingliston, near Edinburgh, on June 22nd/25th. This was a great success and from it stemmed a remarkable increase in membership from a languishing 51 to 83 by December. We publish the report by Mrs Evelyn Bezzant, of Bearsden, near Glasgow, whose drive and initiative have brought about the formation of the West of Scotland Group.

Our other active group, the Northern, needs no introduction, but again fresh ground was broken by their arranging on August 20th/22nd a week-end conference at Grantley Hall, near Ripon, enabling members from other groups to meet their hosts.

So successful was this that the Committee could not fail to take notice of the repeated suggestion by Mr Chapple and Mr Ardron that Annual General Meetings should be held in alternate years in London and the provinces. As a result, we succeeded in getting a booking at Westham House, Barford, near Warwick, for the week-end April 21st/23rd, 1972.

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The loan of our transparencies from the Slide Librarian, Mr H. C. Prew, continues to be one of our most sought-after privileges, while Mr Patrick, our Editor, is tireless in his efforts to produce a Year Book of the highest standard. Mr London had to raise the advertisement rates which has unfortunately led to a reduced demand. We are grateful to the three members who offered to index the first Volume, 1963-1971. The work has been entrusted to Mr R. J. Cleevely, of Reading, the first to offer.

As regards membership, thanks to 81 Joint Members, 5 husbands and wives who take out full subscriptions and 150 new members, we have (to date, December) reached a total of 880, though the loss of 100 through death, resignation and non-payment is regrettable. However, some of the 'lapsed' members do return, which is encouraging.

One disappointment has been that, having been appointed the Heather Registration Authority at Tel Aviv, we seem to have achieved very little. Work is being done, however, and when we can put concrete proposals to the producers of new cultivars, whether they be members of the Heather Society or not, we may get somewhere.

The Scottish Rock Garden Club

If you are interested in beautiful heathers, you must also be interested in rock gardens. Learn all about the natural companions for heathers by joining the Scottish Rock Garden Club. Membership: £1 per year.

Particulars from: R. H. D. ORR, C.A., 70 High Street, Haddington, East Lothian, Scotland.

The importance of heaths and heather is emphasised by the fact that there have been laws governing the burning of heather since 1401. (T. L. Underhill in 'Heaths and Heathers'.)

Experience in Summer 1971

Sir John Charrington, Crockham Hill, Kent

This has, no doubt, been a wonderful summer for holiday makers, but I have found it a difficult one for heathers.

We had three long spells of fairly warm weather with no rain, and finally an even longer dry spell up to mid-October. I am fortunate, under normal circumstances, in having a light soil; but as my garden slopes down sharply from the north, when we have had rain it has been apt to drain away fast and leave the soil too dry. As a result I have lost a number of new plants which had been put in during the Spring. For some reason I have been particularly unlucky with *E. cin.* 'C. D. Eason', about eight of which have withered and died. This variety has done well with me before, and I can find no reason for this bit of bad luck.

In contrast, I am glad to say that I have found what is to me a new variety, *E. cin.* 'Pink Ice'. This has not only survived the drought well, but is, to my mind, a most delightful newcomer. The bright pink flowers are most pleasing and it has remained in flower well into October.

Many of my original planting of about ten years ago have grown leggy and woody, and a number have gone to the rubbish heap. The open spaces have been forked over; a fresh layer of peat put on, and I am now looking forward to receiving a new supply when we have had enough rain.

Long spells of warm dry weather have done one good thing—there have been few weeds and these are easily killed by the hoe.

I took a few entries to the R.H.S. Heather Competition in September and had wanted to include some *E. vagans*; but though many varieties look well in the mass I found it difficult to pick enough spikes as they do tend to brown below though attractive enough at the top.

I do not think this annual competition would be nearly as extensive in classes as it is if there had never been a Heather Society, and I do urge members to put up as many vases as possible to support the occasion. It is small matter if one does not get a prize, for the important thing is to give the public as wide a display of heathers as possible.

Early Days at Champs Hill

A. H. Bowerman, Coldwaltham, Sussex

In a moment of weakness I promised the Editor I would write a few lines on how we planned and developed our heather garden at Champs Hill.

For over 30 years we lived near Littlehampton, where we farmed and gardened on rich alluvial soil. When our son married in 1961 we built our new home near Pulborough, Sussex, a site of 27 acres, with beautiful views to the South overlooking Amberley Wild Brooks and the South Downs. The soil was almost pure white sand overlying sandstone to a depth of over 100 feet, covered mainly with Scots pines, silver birch, gorse and heather. Many years ago sand had been extracted leaving disused pits with 50–60-foot cliffs in which sand martins nest every year. After the rich alluvial soil of Littlehampton our hearts sank as we contemplated the prospect of making a garden on a soil totally devoid of humus and hardly a trace of plant food! What could we grow? The presence of the wild heather gave us the clue. Alas, we knew very little about the cultivated varieties and practically nothing about propagation, but like all true countrymen we had learned that one cannot work against nature and prosper; one must work with it.

To create a garden one needs courage and vision. It is much easier for men to spoil nature than to improve it. As we looked over our site we were deeply impressed by the delightful informality of nature, a seedling here, a sapling there, the fruits of seeds blown in the wind or carried by birds. Success surely must be in working together with the Divine Planner. Our minds made up, we planned the lay-out to harmonise with the surroundings—an attempt to landscape rather than to form a garden. Wherever we could we endeavoured to take advantage of the natural contours and make features of the humps and hollows. We were soon to learn that gorse, very attractive in bloom, was a major fire risk and had to be removed. Only those who have attempted to eradicate this virile plant know how deeply its roots penetrate the rock and how tenaciously it holds on to life!

Our early plantings around the house consisted mainly of the well-known *carneas* and the never-failing *darleyensis*. These were soon followed by *cinereas*, *vagans* and *callunas*. As time passed on more and more names appeared, and today I believe we have over 200 named varieties.

Owing to the sandy soil we have had to buy considerable quantities of peat, without which we should never have been able to establish the young plants, which must not be allowed to dry out in their first spring and summer. This, I believe, is the cause of many losses and disappointments in the foundation of new heather gardens. Once the plants are established they seem to fend for themselves. In order to get a pleasing landscape effect we found that heathers of one variety need to be planted in fairly large drifts. This meant we had to invest in a small mist propagation unit with under-soil electric heating. As a tiller of the soil all my life I have learnt that farming and gardening consist mainly of a battle with weeds! Our chief enemy on this soil is Sorrel (*Rumex*); until the heather plants are established and cover the ground, it is well to be armed with a pressurised hand-spray and Paraquat; this is a great and worthwhile labour-saving investment.

As the years have gone by we have planted a wide variety of rhododendrons, azaleas, conifers (especially junipers), coloured oaks, maples and the attractive *Liquidambar*, and are now beginning to see the fruits of our labours . . . but a gardener's task is never done!

Since we fenced our little estate we have noticed the increase in wild life. Besides being a bird sanctuary we quite often see foxes, grey squirrels and roe deer. We have made a pact with the foxes that they can rear their cubs unmolested as long as they keep down the rabbit population and do not raid our hen roost! So far they have not failed us. It is very thrilling to watch the deer drinking from our lily pond in the early hours of the morning, but not so pleasing to see the damage they do to our young conifers.

As I write in early November we still have *Calluna* 'H. E. Beale' in full flower whilst *E. x darleyensis* 'Ghost Hills' is already bursting into flower. The coloured foliage varieties, *E. cin.* 'Golden Drop' and *C. v.* 'Sunset', are

showing brilliant autumn colour, bringing warmth to the shortening autumn days.

We are deeply grateful to have been allowed to enjoy this corner of England's green and pleasant land, far from the madding crowd, and extend a warm welcome to all heather lovers to visit us when passing.



The West of Scotland Group is Launched

*Mrs E. H. Bezzant, Bearsden, Glasgow,
Scotland*

What I remember most clearly about my meeting with Mrs MacLeod, at the Royal Highland Show in June, is that she too regards gardening as a much better way of passing the time than doing housework. She also talked about the need for someone to rally members in Scotland. But I did not think that this was for me—a mere newcomer. Her infectious enthusiasm must have done its work, however, for I found myself thinking about ringing up the only other Heather Society member in Bearsden.

Luckily for me, Mrs Isobel Hughes proved to be a charming person, a good listener, and willing to co-operate with me in getting together some of the unknown people listed in Group 1. After some discussion it was decided to send a circular letter to all members within fairly easy travelling distance of Bearsden. On November 11th, 1971, twelve members of the Heather Society, two friends, and three interested members of the Scottish Rock Garden Club arrived at Mrs Hughes' home for an evening of talk, slides and to make plans for future activities.

Mr Ardron's 'Heathers for your Garden' pictures were greatly enjoyed. Mr Bell, of Paisley, showed us some remarkable close-up pictures of single stalks of heather blooms and foliage. Soon everyone was comparing notes on various aspects of heather growing. Methods of propagation

were discussed, to prune or not to prune, how different varieties perform in our gardens, and a host of other vitally interesting topics. It seems to me that it is a positive necessity to be able to meet and talk to fellow enthusiasts.

A small steering committee was elected to share the task of organising our affairs. We agreed to hold two more meetings this winter. Mr David Hutton, a local heather grower, has promised to come and talk to us at one of these. We have been fortunate in obtaining the use of a room for future meetings at the Glasgow College of Technology. This will be more central for members coming from the south side of the Clyde. Circulars will be sent to all local members giving details of future meetings.

We plan summer visits to heather gardens at Aberfoyle, Dunoon, Colintrave, Edinburgh, Threave, and anywhere else within reasonable travelling distance. Visitors to Scotland from other groups may be able to join us on these excursions if the dates of their holidays happen to fit.

We hope in the future to welcome many more members to our meetings. We also hope we may have some small part in helping with the design and content of the new gardens being planned around the many new buildings in Glasgow. We would wish to play a large part in the making and upkeep of Scotland's own 'Harlow Car' wherever it may be.



The 'briar' pipe is really the bruyère pipe, 'Bruyère' being the French for *Erica arborea*, the tall tree heath. It is the roots of this heather which are used for the making of tobacco pipes. Grown for the purpose in Northern Italy, the tough roots are taken to Leghorn, where they are rough shaped into blocks which are simmered in a vat for twelve hours to bring out the desired rich brown colour. Exported to France and England, the finishing trades fashion and bore these blocks to produce the familiar pipes. Thus thousands of men carry a piece of heather in their pocket, and how few of them know? (J. P. Ardron in the 1966 Year Book.)

An American Hospital Garden

*Eleanor B. Gambee, Englewood, New Jersey,
U.S.A.*

To be asked to tell the story of our Englewood Hospital Garden—where, why, when and with what it was planted—is a tribute to the Hospital and to our garden club.

The Ericaceous Garden was developed in a two-level inner court, approximately 100 feet square, where replanting was necessitated due to structural enlargement of the Hospital. About to go into its seventh year, it will be the focal point for a meeting to be held here next May (1972) with representatives from all the clubs, in this area, affiliated with the Garden Club of America, attending.

Of particular interest will be the heath and heather section—an innovation, in our part of the world, in garden design. The popularity of these plants, on this side of the ocean, is just burgeoning. Although for years they have been used as individual plants or in rock gardens and, in a few arboreta, in massed planting it is only recently that retail nurseries have offered them in any sizable selection for sale to the public.

Great credit for the current trend must be given to the late Esther Deutsch, admired and beloved by many members of the Heather Society. According to more than one source of information it was the verdict of an incurable cancer that spurred her on to the study, cultivation and propagation of this group of plants. She felt that, in general, they had been too long neglected here and could advantageously be put to more extensive use.

Upon being introduced to these two genera and their close cousins we learned of their value and charm, their ease of cultivation, their year-round attractiveness, their variety of colour and their long blooming period. With maintenance the cry of anguish in all gardening efforts, regardless of size, we decided to plant a large section of the lower level of our garden in heaths and heathers.

How did our club happen to become interested in *Ericaceae*?

The calendar goes back about 12 years when Mr Louis Politi, Horticulturist of the New York Botanical Garden, came to my rescue as I despaired at the enormity of the vegetable kingdom. I was beginning to understand what Socrates meant when at the end of a lifetime of study he said: 'I know only one thing. And that is—that I know nothing.' Certainly the more I learn the more I realise how much more there is to learn. Mr Politi advised concentrating on one particular family. His choice was the Heath family.

Sometime later our club was invited to exhibit a garden in the International Flower Show, in New York, with emphasis on one plant family. The suggestion of using the Heath genera and the research already compiled were given to the chairman of the project, a truly talented plantswoman. We won a blue ribbon on our educational entry.

Bolstered by this recognition we approached the Board of Governors of the Englewood Hospital, offering to replant the inner court based on the same design, which also had been inspired by Mr Politi, and on the same type of garden.

The timing was fortuitous. We began construction of the waterfall and pool in February, 1965, and were able to have a presentable and beautiful garden, although far from finished, for the Hospital's open house in June of that year in honour of its 75th anniversary when the garden and various other new features of the Hospital were dedicated. The favourable comments from the 1,200 people present on that day were pleasing to the Hospital, as indicated by their expression of appreciation, and gratifying to us.

The initial step in the actual establishment of the garden was to cut out a section along the top of the existing wall between the two levels in the court. This left a rough area where 19 tons of rock, laboriously brought in on dollies, could be used to fashion the backdrop for a naturalistic waterfall. A landscape contractor was hired for this work and for the construction of the two pools below, one slightly lower than the other. A circulating pump for our cascade and an underground sprinkler system for the whole area were installed. As soon as weather permitted the first planting was underway.

Trips to nurseries were made, but also several large *Rhododendron*, *Andromeda* (*Pieris japonica*), and Mountain

Laurel (*Kalmia latifolia*) were dug up from the gardens of members and friends for replanting at the Hospital to produce a certain amount of instant beauty.

Over the years many more shrubs, ground covers and a few trees (*Oxydendron arboreum*—the only tree species in the family) have been added. A partial list of the genera includes: *Arctostaphylos*, *Bruckenthalia*, *Calluna*, *Chamaedaphne*, *Chiogenes*, *Daboecia*, *Enkianthus*, *Epigaea*, *Erica*, *Gaultheria*, *Gaylussacia*, *Ledum*, *Leiophyllum*, *Leucothoe*, *Phyllodoce*, *Vaccinium*, *Zenobia*. Our goal is to have every genus that is in cultivation and is hardy with us represented.

Two flagstone terraces, one on each level, have been built and furnished with attractive wrought-iron mesh chairs and tables. A massive, curved bench made of marble chips is an interesting architectural feature that lends dignity as well as beauty to the setting. At the lunch hour, during mild weather, there is often 'standing room only', with the white caps of the nurses contributing charm and contrast to the colour scheme.

Once a year, in early summer, we mulch the whole area with a heavy layer of pine needles. This provides nutrition, discourages the growth of weeds, and offers a neat appearance.

Obtaining the pine needles is an adventure in itself. About ten members in three or four station wagons and one pick-up truck drive a dozen miles to the 1,000-acre property of the Hackensack Water Company. Here is located the reservoir that supplies water to most of Bergen County, one of the most populous localities, unfortunately, in the world. A forest of pine trees surrounds the reservoir. The husband of one of our group is in the paper business. He contributes to the cause sturdy paper bags four feet in length with a capacity of three bushels which we stuff full of pine needles. We make two trips, filling 100 bags each time. We spread the needles thickly, cones included, on all the beds.

Needless to say we have had some failures as we continue to try to find the right plant for the right conditions—or, rather, for the conditions in our inner court where cold winds spiral down between the tall buildings in winter and the hot sun beats down in summer. But our casualties have

not been great, perhaps less with our heathers than with our other genera.

Certainly the project of having a garden with emphasis on a particular family is one of the most exciting adventures upon which a club can embark. To track down rare plants appropriate for the site becomes challenging and also illuminating with the exchange of catalogues and with journeys made to specialised growers.

Recently a club member herself was hospitalised. During her stay another patient, a man much interested in gardening, was not making the progress hoped for by his doctors. He was moved so that his room overlooked the inner court. His chart immediately showed an upward curve towards recovery—or so we are told and we like to believe. Perhaps that is the real story of our Englewood Hospital Garden.



From Hard Court to Heather

*Sir Frank Morgan, Hyde Heath Farm,
Amersham*

Surely there can be no more depressing a feature in a garden than a hard tennis-court fallen, for one reason or another, into disuse.

Ours was certainly no exception as we, and our equally aged contemporaries, decided that our tennis days were over.

But what was to be done with the grey arena whose hitherto immaculate surface—our former pride and joy—was rapidly and insidiously being invaded by unwelcome vegetation?

One thing was clear—it must at all costs be hidden from the garden proper and the house. So down came the lofty surround for a start, to be followed by the planting of a line of vigorous flowering shrubs on the vital side.

Whilst the latter in time sufficed to shield the unsightly court from the gaze of visitors, the knowledge of its existence was always with us, and never ceased to rankle!

We were beginning to despair of ever discovering a pleasing solution to our problem when, following a chance

visit to a West Country nursery, we were bold enough to suggest to the nurseryman in question that heather might possibly provide the answer.

The immediate reaction, alas! was the reverse of encouraging! But when it was explained that the tennis-court had been fashioned by excavation from a gentle slope revealing a clay sub-soil which had then been overlaid with 'breeze' to a depth of some eight or nine inches before the application of the playing surface (which was of the 'loose' variety), thus providing perfect drainage; and furthermore that it was our intention to construct our beds for the heather by laying for each bed a deep foundation of leaf-mould *on* the court to be covered by some inches of a neutral loam generously laced with peat, our nursery friends relented somewhat, with the result that we went ahead and made three trial beds each of some 200 square feet in area.

Being at that time totally inexperienced in the cultivation of heather we relied on the nurserymen to produce a planting plan and provide the young plants. The latter, numbering about 600 in 40 different varieties, arrived in October 1954 and were immediately planted.

At the end of 12 months it was tolerably certain that heather would not only survive but flourish under the conditions we had provided for them. At the same time it was borne in on us that if we were to go ahead and plant up the remainder of the court with heather the sooner we learnt to propagate the better!

Sad to relate, and yet understandably enough, the request to our nursery friends for advice on the subject did not meet with the encouraging response we had looked for. We turned therefore to the Royal Horticultural Society at Wisley and found in the Director (then Mr Knight) a real friend who invited us to Wisley for practical instruction which proved invaluable. Soon we were hard at it in our own garden and happily with encouraging results.

There followed the construction of some seven more beds to accommodate in due course the many hundreds of young plants we had succeeded in raising.

When this operation was completed the court was planted up to roughly half its area, and it looked so jolly (in our

eyes, at any rate!) we decided to call a halt to further reproduction. But finding the remaining uncovered portion of the grey court unsightly we purchased some hundreds of turves and, laying them carefully on the bare surface, turned on the hose for some days and eventually they took root and flourished.

As for the narrow winding paths between the beds, they very soon became clothed with self-sown grass, clover and—alas!—yarrow, and so they remain to this day.

Of the many mistakes we have made in our growing of heathers since starting in 1954 we regard the most serious as:

- (1) the too-close planting of the young plants in the first instance, in which, incidentally, we feel we were set a bad example in the original planting plan;
- (2) the failure in our early years to irrigate young and especially newly planted plants in prolonged dry weather; and
- (3) the omission to restrain by annual pruning the more rampant varieties from overwhelming their more modest neighbours.

Errors and disappointments notwithstanding, it has all been more than worth while and we wouldn't be without our heather patch for worlds!



Phytophthora Cinnamomi

D. A. Richards, Eskdale, Cumberland

This is a fungus disease that never produces anything visible to the naked eye and can only occasionally be recognised by specialists with the aid of a microscope. Thus among 20 plants that died in similar circumstances at the same time it was only positively identified in two. Invisible killers, such as atomic radiation, can be very frightening; however, by applying the knowledge we have they can be fought.

Although it was originally described as an infection of cinnamon it became of commercial importance in Europe, affecting the sweet chestnut (*Castanea*). The tannin in the

dead roots reacted with the iron in the soil to give an inky stain and it became known as the 'Ink Disease'. (Chemically it is similar to the inks used, based on iron gallate or tannate, up to quite recent times.) These chestnuts were not killed but became so weakened that they were not a commercial proposition and large areas were abandoned.

Since it was first reported in Sumatra, in the East Indies, in 1922 the dossier has grown and in *The Gardener's Chronicle* of February 13th, 1970 (Gaggini), it was reported as affecting over 190 plant species. The casualty list includes birch, beech, various conifers, oak, antirrhinum, calceolaria and broad bean, and cannot be complete. There is a temptation to plant up infected ground with other plants. If they are immune the disease will remain in the soil for at least five years and may be carried in soil or flood water to other parts of the garden. If they are susceptible they may yet survive and provide a focus of infection for evermore.

Ink Disease needs high temperatures and, even temporarily, wet conditions to develop. If a heat wave, possibly accompanied by a drought, is followed by heavy rain those conditions are met. The symptoms can be seen within a month.

The healthy plants are likely to be in maximum growth. In those doomed the growth is checked. The foliage changes colour slightly, but readily noticed compared with healthy neighbours. Frequently it looks greyish or silvery and many Callunas turn reddish at the base of the side shoots. This occurs in *C. v. hirsuta* and could hardly be missed. Typically, wilting quickly follows and then death. If they are left for a month or two (and they should not), when one goes to remove them they commonly break off at ground level, the crown, very dark in colour, having rotted away. In Holland, Germany and America it is sometimes referred to as 'crown rot' or 'root rot'.

Among a group of dead plants some remain apparently healthy. Self-sown seedlings show a high immunity; newly transplanted plants are highly vulnerable. It is normal for older plants to have minor roots die as young ones explore new ground. In the broken roots of transplanted stock and the dying rootlets of older plants Ink Disease finds a means of entry not offered by the young seedlings. I have

had Callunas killed but branches that have layered themselves have continued to lead an independent existence again, depending on a new and vigorous root system.

These outbreaks always follow extreme heat, often accompanied by drought, then excessive wet which may be only temporary. A month or so later the dying plants are obvious; a few may stagger on, more dead than alive, for several months and can be seen to be dying 'from the bottom up'.

Bearing in mind this is a root infection that does not extend far up the stem there is no danger in taking cuttings from the tops of plants when they first show symptoms. Mud splashes could carry it, but if the branches are washed vigorously under a running tap before the cuttings are detached they are quite safe.

The conditions enabling Ink Disease to strike do not occur every year in this country. Experiments to find effective fungicidal treatment in Holland were useless because the weather would not oblige. Extreme cold kills it and it has been claimed that it was eradicated in plunge beds in Germany during the winter. It most certainly is not killed in any winter near the South or West coasts of Britain. My home, Cumberland, is not known for excessive temperatures, and I have no heathers in either greenhouse or cold frame where Ink Disease could hibernate. In both 1970 and 1971 casualties have been heavy.

My friend, Mr John Ardron, in the hills above Sheffield, and other members with cold gardens may find the more tender heathers difficult or impossible, but they are unlikely to find Ink Disease out of doors.

Trouble is more easily avoided than cured. I would like to see a firm guarantee from nurseries that plants and soil are not infected. This is even more important when one nursery is trading with another.

To sum up, really big trouble can only develop if

1. The infection is present.
2. The ground is at times waterlogged.
3. Soil temperatures become high.

Probably before long effective treatment of soil will be discovered, for infected plants *cannot* be cured. Until then the most effective treatment of infected soil I can suggest is that it be *saturated*, over several days, with two per cent

Formalin (solution of formaldehyde), sealed with black polythene mulch and left for three months. If more plants round the edge of the area are killed by the Formalin, never mind. After removing the polythene it will be necessary to fork over and ventilate the soil before planting. Any odd plants that die in suspicious circumstances after this should be dug up with plenty of soil and burnt, and the hole filled with two per cent Formalin solution.

Drainage should be improved where practicable. Although *Erica tetralix* thrives in the wild only in wet places, it can grow very well in the garden without much water.

During hot dry spells a sprinkler using soft water is very beneficial, not to saturate but to thoroughly moisten the surface. This adds nothing to the deep soil moisture but the cooling action is very considerable as it evaporates. Pruning and clearing all litter in the autumn, to enable the winter cold to penetrate, is also practised in Europe and any peat mulch may be applied in the spring.

If any reader can think of any more dirty tricks we can play on this murderer I should be very interested.

Herr Hellmut Vogel, of Bremen, Germany, replying to a letter on this subject from Mr J. P. Ardron, writes:

Unfortunately, up to now there is no efficient remedy for this disease. *Phytophthora cinnamomi* is a parasite, transferred in soil, and can only be eliminated by preventive hygiene. In Germany infection in gardens is usually killed by a soil temperature of minus 6°C (25°F). In greenhouses and frames where plants are not exposed to severe cold, careful disinfection is necessary. We steam the soil or use Methyl-bromide.



The history of heaths goes back to the great Greek and Roman civilisations, when such philosophers as Theophrastus, the favourite pupil of Aristotle, and Pliny the Elder in their books on plants referred to the heaths as *Ereike*. The name *Ereike* then included *Calluna*. (T. L. Underhill in 'Heaths and Heathers'.)

A Blossom there Blows that Scoffs at the Snows

*Donald Crabbie, Eddlestone, Peeblesshire,
Scotland*

We were looking for wading birds but found instead Snow Buntings and *Calluna* 'Hirsuta Typica'. It was on the Morayshire coast that we came across this beautiful heather on the north edge of a large Forestry Commission plantation, growing in nearly full shade, in large clumps, under scattered Scots pines. The lovely grey foliage presumably evolved over hundreds of years to counteract the exceptional dry and exposed conditions of sand dunes. It seemed to have adapted itself to its new shady and sheltered situation without difficulty, and was thriving and still flowering in mid-October.

C. v. 'Hirsuta Typica' is one of my favourite foliage heathers. Once beyond its early youth it grows well with me and is a delight throughout the year even in flower, unlike many of the foliage varieties.

I can admire the coppery foliage of *C. v.* 'Cuprea' from my bedroom window with the contrasting 'Hirsuta Typica' behind, and the bright green of *E. carnea* 'Springwood White' in front. One morning I noticed 'Cuprea' had lost its charm. Without waiting to finish my dressing I rushed barefoot across the damp grass expecting to discover some calamity had struck down my plants. In fact the flowers had merely opened—and spoilt the whole effect!

You may have difficulty in following my train of thought, but this brings me to the question of pruning. Nowadays one is often told to prune annually; this, I believe, is too sweeping advice. Roe deer got me thinking about pruning some years ago.

I had two trial plants of *C. v.* 'Orange Queen' for which I had high hopes. One was pruned fairly hard by roe, the other was untouched. The next summer the first grew away slowly, was uninteresting and did not flower; the other was quite a good orange, grew well and flowered. The following summer the pruned plant grew dense and upright, became

bright yellow with a green tinge, and still did not flower. The other grew lax and wide, the foliage was dull green with a slight yellow tinge, and it flowered well. At this stage I do not believe even an expert could have told they were the same cultivar; habit, foliage and flowering were so different.

This taught me to prune most ('Hirsuta Typica' is an exception) of my foliage heathers annually and lightly because this reduces the flowers and also usually seems to help the colouring of the foliage. Heather grown for their flowers may, or may not, flower better when pruned in my garden. This year I pruned *C. v. 'Alportii'*, but I missed some. Those unpruned flowered very much better than the pruned plants. Strong growers like *C. v. 'H. E. Beale'* if pruned annually when young certainly produce magnificent long spikes for cutting, but I am not sure for how many years they will keep it up.

I do not usually prune carneas but I did prune one patch of 'Springwood White' last May. In early October we had 14 degrees of frost and a lot of new shoots were browned, but unpruned plants were untouched and in fact no other heath was damaged.

What happens in the wild? The day before we found 'Hirsuta Typica' my wife and I walked to the top of the Lairig Ghru Pass in the Cairngorms, the 4,000-ft range of hills in the Central Highlands. Once above the trees the heather grows evenly as it does on most hillsides; below the tree line the character of the heather changes completely. The beautiful old self-sown Scots pines are widely spaced and the heather grows in large clumps, each plant being seen as a separate mound perhaps three feet across, making this small bit of countryside perhaps the most beautiful in Scotland which, to a Scot, means the most beautiful anywhere.

Why does the heather grow so differently above and below the trees? There has been no burning for years as the area is a Nature Reserve and no fence divides it, so grazing cannot cause the difference. Can it be the pruning of wind and frost? Even widely spaced trees might allow snow to settle deeper and so protect the heather from the searing winds in winter. A day or two later we saw the effect of frost on heather only a few miles away. The Feshie River

runs through a flat-bottomed glen; large areas of heather on the flats on either side of the river were a dismal sight, being completely browned presumably by frost draining from higher ground or freezing mist rising from the river, indicating how readily *Calluna* can be damaged. Incidentally, plants of *E. cinerea* and *E. Tetralix* were quite unaffected.

So in my cold and exposed garden pruning produces various results: sometimes more flowers, sometimes less, usually brighter foliage, occasional frost damage, always a change of habit. Old plants may act differently to young ones, and results may be different in warmer gardens. In the wild, reduced pruning produces a beautiful scene more interesting than the ever-open hillsides of heavily grazed, burnt or weather-pruned heather. I believe there is still much to learn.

In Bulletin No. 14 the Editor suggested a method by which members can help in a research project into pruning and feeding. I hope many will participate, thus helping the Society to build up over the years a real fund of knowledge based on wide experience. Those who help will probably have to keep careful notes; it is only too easy to forget, or even to remember incorrectly. But in doing so much is learnt and new beauty seen, and, what is more, it is fun.



Grantley Hall 1971

A. J. Stow, Flackwell Heath, Buckinghamshire

On the 10th May, 1971, I received a circular from Mrs MacLeod stating that our Northern friends were holding a weekend conference at Grantley Hall in Yorkshire, the subject 'Heathers for your Garden', and that any members interested were invited to drop Mr Ardron a line for further details. I asked my wife if she would like a weekend in Yorkshire in August; she said 'Yes', and a postcard was in the post that day. My wife then asked where we were going and why, which was quite understandable as we are not usually prone to trotting off at weekends, especially to destinations over 200 miles away. I told her it was a Heather

Society occasion and then she understood. I should at this point make it quite clear that she does not suffer like me from 'Heathermania', although she knows her heaths and heathers and has very strong views, favourable and otherwise, on various cultivars.

In 1970 we had made our first-ever visit to Yorkshire, had spent a most enjoyable week exploring the windswept moors of Wharfedale, taking in the breathtaking views that were always with us, and had sampled warm Yorkshire hospitality; we were ready for more—and so to Grantley Hall in August.

We arrived at the peaceful Adam style 18th-century house after our long journey up the M1, signed in, followed by the first of several excellent meals, after which 58 of us adjourned to the Lecture Theatre where we were welcomed by the warden, Dr Howard Strick. Then we were entertained for the rest of the evening by John Ardron, who showed his slides, his theme being 'Heathers for All Seasons'. One could not but be carried along by the sheer enthusiasm of this friendly Yorkshireman.

On the Saturday morning we were well entertained by Messrs London, Vickers and Tyson on that most interesting of topics—propagation. Each one had entirely different views and ways, which was obviously the reason this particular trio had been chosen.

After lunch most of us spent the afternoon on the moors in search of new cultivars. I wondered then what the occupants of the cars that passed must have thought at the sight of so many of us bent double peering eagerly amongst the heather. My own prize of a golden foliated *Calluna* turned green within seven days of returning home; perhaps other collectors had better luck.

At five o' clock members had the chance of firing questions at a Brains Trust panel consisting of Mrs MacLeod, Mrs Boyd, Fred Chapple, John Ardron and Jack London. Many members took advantage of this heaven-sent opportunity which was only ended by the dinner bell.


During the evening, Mr Prew, the Society's librarian, showed the collection of the Society's slides, and a very good collection it is, too. Jack London had also brought along his own collection and, helped by yours truly, a

further selection was shown, many depicting Jack's personal touch with members themselves appearing on the slides. Some, thanks to me as the operator, were shown upside down, but heathers look good whichever way you look at them! Fred Chapple was heard to remark afterwards that it was nice to see people enjoying their heathers. How true.

On the Sunday morning we were entertained by Mr Haigh, from Anglesey in Wales, on the subject of 'Garden Design', aided and sometimes corrected by his wife in the audience. One interesting point that did arise during the morning was that it was easier to design a garden of reasonable proportions but not so easy with the rectangular plot of, say, 60×30 feet which surely is the most popular size amongst our members. Perhaps the committee might like to organise a competition. I'm sure this would prove very helpful and interesting if ideas were published in a future Year Book.

All good things must come to an end, and so after dinner we said goodbye to Grantley Hall and proceeded to Harlow Car. In 1970 I was disappointed with this garden, but what an amazing transformation Geoffrey Smith and his staff have performed in one year. On this grey and damp day the fine rain drops of the morning, seeming to be suspended on the heathers, presented a most enchanting picture, which, coupled with the bold and imaginative planning of this heather garden, made this visit a most rewarding experience. Then John Ardron gathered us together in this peaceful and so appropriate setting and Mrs MacLeod had the pleasant task of presenting to Fred Chapple, our retiring President, a gift of Sheffield steel and a cheque in recognition of all he has done for the Society.

I will end this account of a memorable weekend with these words from Fred Chapple himself: 'It is not only the growing of heathers over the years that I have enjoyed so much, but the friends I have made bound together with one common aim'.



Early botanists were interested in heaths and heathers enough to record a white *Calluna vulgaris* as early as 1597. (T. L. Underhill in 'Heaths and Heathers'.)

Heather Trials in Eastern Canada

R. M. Steele, Halifax, Nova Scotia

Nova Scotia thrusts out into the Atlantic half-way between the Equator and the North Pole. It is affected by the cold Labrador Current which flows down from the Arctic, and also by the Gulf Stream which is usually between 150-200 miles from Halifax, the main ocean port.

The climate is quite varied, the prevailing winds being from the south-west. The warm fronts move up the east coast of North America from the south and the cold fronts move down from arctic Canada. On the coast the winter temperatures reach from -5° to -10°F , and the summer temperatures very occasionally reach the low eighties. In the interior temperatures in some places are as low as -30°F , but summer heat occasionally reaches the middle nineties. Annual rainfall is 43-48 inches, including winter snowfall. There is also quite a lot of fog which, combined with the low summer temperature, keeps evaporation and transpiration rates relatively low.

The period Fall to Spring is generally a long season of cold weather, unsuitable for top-growth of plants; vegetative growth in rhododendrons does not commence until the end of June, so the growing season is very short, though root growth continues through most of October.

Although the name of the Province means 'New Scotland', and the population is predominantly Scot in ancestry, there is little sign of heather cultivation. But there are two very small colonies of naturalised heather which have survived in the wild for more than a century; the few garden-grown heather plants which I have been able to locate originated as layers taken from one of these stands, which have an interesting history, for it was here where a British regiment bivouacked on its arrival from Scotland more than a century ago. It is related that the pallets (mattresses) of the soldiers were filled with heather and when they shook them out, to refill them, seed fell on the ground and later grew.

The soil in the Halifax area, where the trials are being

conducted, is yellowish-brown stony sandy loam, derived from quartzite. The trials commenced with rooted cuttings or small plants, in June 1969, in nursery beds at several locations. These were left without protection and any special attention apart from weeding. (Here Captain Steele gives a list of the species and cultivars planted, viz: 29 *Callunas*, 10 *carneas*, 3 *vagans*, 1 *Tetralix*, and 4 winter-flowering hybrids.)

The first winter (1969-70) was most unusual; it was the mildest winter on record, the thermometer at the trials location never going below +6°F. There was no snow and for very long periods the temperature remained between 6°-10°F, with high winds. The result of the drying winds and no snow was total destruction of all the *Erica vagans*, heavy damage to the *E. x* 'Arthur Johnson' and 'Silberschmelze', and some damage to 'George Rendall'. *E. Tetralix* 'Con Underwood' was entirely killed at one location and undamaged at the other site. *E. carnea* 'C. M. Beale' was badly damaged but the remainder of the *carneas* survived in relatively good condition. Most of the *Calluna* group came through the bad weather unharmed, with the exception of 'Blazeaway', 'Golden Feather' and 'Robert Chapman' with moderate damage, and slight damage to 'Foxhollow Wanderer', 'H. E. Beale', 'Ruth Sparkes' and 'Sunset'.

The winter 1970-71 commenced early with heavy snow on unfrozen ground. The snow continued to build up until late February when heavy and continual warm rains removed it entirely from the trials area; the ground remained unfrozen until mid-January. A few days later snow again covered the plants, and stayed until the spring. Total snowfall was 149 inches, but there was little damage to plants, except for an occasional stem or shoot broken by compression.

As the weather in these two successive winters was most unusual a further substantial programme of trials will be necessary before a comprehensive evaluation can be made of the performance of heathers in this climate, but there are observations that can be made now, viz.:

1. The annual growth rate in the Nova Scotia climate is

much slower than in the United Kingdom. It is expected that it will take five years here to attain the size of a three-year plant in England.

2. This Fall (1971) has been very wet and mild, with no temperature below $+29^{\circ}$ F until the first of December. The coloured foliage varieties have remained in quite neutral garb and are just now changing into their lovely colours.
3. Each month excellent propagation results have been obtained, from May to October, by inserting small cuttings in a rooting medium of 50% sphagnum peat, 50% Perlite or coarse sand, placing the well-watered flats in light mottled shade where they get filtered sunlight, covering with a clear polyethylene tent six inches above the cuttings, which are watered only when they appear to need it.
4. Application of a phosphatic fertiliser (Magamp or bone meal) and incorporating additional humus, and mulching, has substantially improved the vigour and performance of our heathers.
5. The earliest bright colours seem to appear in plants living in impoverished circumstances of poor soil, drought, and lack of nutrients. It is doubtful if these particular plants will stand our harsh conditions; time alone will tell.

From our experience up to now and the two-century-old colonies of common heather, it is anticipated that most of the *Calluna* and *E. carnea* will be quite satisfactory performers for Nova Scotia. Some damage is to be expected, but the recovery rate should eradicate the scars of winter damage.

I should explain that it was T. H. Findlay's visionary use of heather on a grand scale in the making of the Heather Garden in Windsor Great Park that stimulated our heather trials here in Nova Scotia and in Virginia, U.S.A. On this continent there are a great many ugly features in the landscape which could be turned into places of great beauty by the knowledgeable use of heather in the manner demonstrated by T. H. Findlay. At every opportunity I have

encouraged landscape architects, commercial horticulturists and private garden enthusiasts in America to go to England and see the magnificent use of heathers in this lovely garden.



Netherlands Notes

H. L. Nicholson, Dorking, Surrey

Mijnheer de Voorzitter,

Het is mij een groot genoegen, als de tweede Engelsman die lid werd van de Nederlandse Heidevereniging, de beste wensen van de Heather Society over te brengen voor een lang bestaan en voortdurend succes.

*Het doet mij altijd veel plezier, naar Nederland te tomen en mensen te ontmoeten die zoals ik houden van Ericaceae.**

It was with these words that I opened my speech in reply to the welcome given to me by Mr L. van Veldhuysen, the President, and Mr G. Seppen, the Secretary, when I attended the meeting of the new Dutch Heather Society (Ericultura) in Doorn on August 21st, 1971. I went on to say (in English) that I hoped that now a Dutch Society had been formed, the Dutch members of our Society would still remain with us, and I was sure that it would be even better for heather lovers on both sides of the North Sea that a society had been founded to cover the whole of the Netherlands with mutual co-operation between the societies.

Mr van Veldhuysen replied most charmingly and sent fraternal greetings from them to us. The formal welcome was to some 80 people, and this was a high percentage because 'Ericultura' was only started in April with 30 members which rose to over 140 in August. Good going!

After the meeting there was an excursion to the Van Gimborn Arboretum in Doorn. In this beautiful park, which for a number of years has been the property of the State University of Utrecht, lies a lovely heather garden, which I understand was started in 1920 and is now in a transitional stage. The number of cultivars grown was extensive and

they were well labelled. I noted the following Callunas doing very well: 'Alba Erecta', 'Beoley Gold', 'Golden Feather', 'Long White', 'Sunset' and 'Tib'. There was a splendid group of *C. v. 'Gissly'*, raised in Holland and named by Mr W. Hallboom of Driebugen; it is upright in habit with greyish leaves, and when fully out purports to have reddish-purple flowers like *C. v. 'Serlei Rubra'*. I understand that a new form of *C. v. 'County Wicklow'* is to be introduced by Mr D. Boer of Boskoop, and it is said to be a small plant of high quality.

It was noticeable that plants of *E. cinerea* 'Golden Drop' and 'Golden Hue' were very green in colour, and I suspect these fine cultivars were missing full sunlight as the garden had too many trees; some of them had gone long in the tooth and were badly out of shape. The garden could be vastly improved by selective felling to give more light and air, and the aesthetic effect would be perfect, with better vistas. I found other interesting *Ericaceae* in large groups of *Gaultheria* and *Ledum* which, interspersed with heathers, gave variety to the planting.

The whole area was fenced against hares and during the time we were there one was running up and down outside the wire netting doing his best to get in and vary his diet.

I was able to meet members of the Heather Society, including Mr H. J. van de Laar and Mr J. Arens, both of whom assured me they would, of course, remain members of our Society and hoped many new Dutch members would join.

After an excellent lunch we all set off by car for a visit to the Darthuizer Nurseries at Leersum. In this vast and exceptionally beautiful nursery there is an enormous number of Callunas and Ericas which are an up-to-date assortment, besides many other plants. Amongst others I noticed *C. v. 'Foxhollow Wanderer'* and again 'Long White'; the Dutch are very fond of this, their own Calluna. I was told by the owner's son they have 360,000 heather plants; they have now joined forces with an English firm who specialise in working with local authorities, so let us hope more of our towns will become heather conscious. It gave me the greatest pleasure to be with these delightful people who are beginning to take even more

interest in the use of heathers, and I hope to make my visit to the Floriade in Amsterdam in 1972 coincide with another of their meetings. It was a day I shall always remember as many new friendships were made.


I was taken by Mr and Mrs Huizinga, who are members of 'Ericultura', to the heather garden which is part of the Botanische Tuinen van de Rijksuniversiteit, Utrecht. These gardens were constructed by the University which is in process of moving out from the centre of the town. Part of the site was formerly a fortress constructed shortly after 1870 as a defence against the German-Austrian invasion. The old bunkers have been partially covered with earth and masses of stone imported from Belgium and Germany to form 'mountains' (as described to me), and in between these hills a heather garden was made ten years ago. Trees were planted at the same time, and the whole effect is very attractive. *Erica cinerea* 'C. D. Eason' was noticeable here, and amongst the Callunas 'Golden Feather' and 'Silver Queen' looking very lovely with woolly foliage and mauve flowers radiant in the sunshine. A plant which interested me was *E. vagans* 'Viridiflora', which I suppose can be called a botanical curiosity, with yellow sea-green flowers in small feathery clusters or extrusions. It would do well as a contrast plant and should marry with the golden foliage varieties. It was also interesting to see a recent formal planting of heathers around an elevated area with seats; how wise of the University to choose heathers for all-around-the-seasons colour.

I must visit them again to see how they are getting on. Any excuse for me to go to the Netherlands is always valid!

**Translation of Mr Nicholson's speech:*

'Mr President,

'It is a great pleasure for me, as the second Englishman who became a member of the Nederlandse Heidevereniging (Dutch Heather Society), to bring the best wishes of The Heather Society for a long existence and enduring success. I am always very happy to come to the Netherlands and to meet people who, like me, love the Ericaceae.'



Calluna Vulgaris and Soil Fertility

H. C. Prew, Northwich, Cheshire

In 1970 J. P. Ardron wrote an article entitled 'Mycorrhiza Defends its Host',¹ in the first half of which he summarises his impressions gained from studying a Forestry Commission Bulletin, and² in the second half deals with the doubtful advantage of using nitrogenous fertilisers on heathers.

The article induced me to get a copy of the Bulletin and also of a Forest Record³ dealing with mineral nutrients and heather. This latter publication in particular has implications for those growing heathers on poor and sandy soil.

The Forest Record⁴ deals with investigations at two sites, Greenham Common and Oxshott Common, similar in that both had a shallow layer 2-3 inches thick of poorish acid soil (the heather-rooting horizon or layer) with poorer soil underneath, though they differed in some other respects.

Greenham Common, Newbury, Berkshire—sampled 1951/52.

The parent material is a Tertiary Plateau Gravel of uncertain age and origin. Altitude *ca.* 400 feet. Rainfall *ca.* 35 inches. Exposed to the S.E.

[The Report has a photograph of four typical *C. v.* specimens, one from each site, which has enabled me to calculate the height (Ht) and diameter (Dia.) of the top growth where figures are not given.]

Site I. Undersized *Calluna* as sole dominant. Other vegetation: *E. Tetralix* frequent, *Ulex minor* (Dwarf Gorse) occasional, *Cladonia spp* (Mosses) abundant.

1. Ardron, J. P., 1970. 'Mycorrhiza Defends its Host.' Heather Society Bulletin No. 9, p. 4.
2. Handley, W. R. C., 1963. 'Mycorrhizal Associations and *Calluna* Heathland Afforestation.' Forestry Commission: Bulletin No. 36.
3. Aaron, J. R., 1964. 'Studies on the Mineral Nutrient Status of Heather, *Calluna vulgaris*.' Forestry Commission: Forest Record No. 53.
4. *Ibid.*, pp. 7-10.

C.v. rooting horizon soil pH 3-6. Poorly draining in places. C. v. very badly developed. Ht seldom above 8 inches Dia. ca. 3 inches.

Site II *Calluna* with Rush.

Other vegetation: *Juncus effusus* (Soft Rush) abundant.

Betula verrucosa (Silver Birch), *Salix caprea* (Goat Willow), *Ulex europaeus* (Gorse) all occasional.

Deschampsia flexuosa (Wavy Hair-grass), *Rubus fruticosus* (Bramble) both rare.

C. v. rooting horizon, pH 4-1. C. v. Ht ca. 18 inches. Dia. 5 inches.

Site III *Calluna* with Gorse.

Other vegetation: *Ulex europaeus* (Gorse) dominant. *Calluna* and *Deschampsia flexuosa* (Wavy Hair-grass) both abundant. *Rubus fruticosus* (Bramble) frequent.

C. v. rooting horizon pH 4-8. Ht ca. 19 inches. Dia. ca. 11 inches (bushy).

Site IV *Calluna* with Bracken.

Other vegetation: *Calluna*, dominant, *Pteridium aquilinum* (Bracken) dominant in summer only, *Rubus fruticosus* (Bramble) rare. *Chamaenerion angustifolium* (Willow Herb) rare.

Soil pH not given. Ht ca. 21 inches. Dia. ca. 9 inches (bushy).

I visited Greenham Common on July 17th, 1971, and found Sites I, III and IV, though doubtless not the precise sampling areas, but failed to find Site II in the time available. I did, however, find one with some *E. cinerea*. On Site I the heather was about 10 inches high and at Sites III and IV about 20 inches or so with some plants at Site IV nearby 30 inches.

There was no doubt in my mind that the soil became richer from Site I to Site IV, though the difference between Sites III and IV as regards *Calluna* growth was not marked except for the scattered tall plants on Site IV.

Oxshott Common, Surrey. Sampled 1952, 1953, and 1956. On Bagshot Sand. Altitude ca. 200 feet. Rainfall ca. 25 inches. Rather sheltered.

The two sites were selected because they showed markedly different degrees of luxuriance of *Calluna* and were roughly equivalent to Sites I and IV at Newbury.

Site A. Undersized *Calluna* as sole dominant.

Other vegetation: *Ulex minor* (Swamp Gorse) occasional.

Cladonia ssp (Mosses) abundant.

C. v. rooting horizon pH 3.3–3.6. Ht seldom above 10 inches.

(Soil layer beneath is heavily leached sand (pH 4.0) so drainage is probably better than at Site I at Newbury.)

Site B. *Calluna* with Bracken.

Other vegetation: *Calluna* dominant, *Pteridium aquilinum* dominant only in summer. (Rather more shade than Site IV at Newbury because of nearby oak, pine or birch.)

C. v. rooting pH 3.5–3.9. Heather good but Ht not given. Below is given analysis of the top main rooting layer.

Site	Soil depth	N%	P ₂ O ₅ %	Exchangeable Cations*		
				K	Mg	Ca
A	0–2"	0.29	0.105	0.558	0.558	5.44
B	0–3"	1.42	0.145	1.8	1.8	17.8
Ratio B/A i.e.		4.9	1.38	5.1	3.2	3.27

Ratio B Tall *Calluna* with Bracken

A Undersized *Calluna* as sole dominant

Explanation:

(i)*The amounts of the Exchangeable Cations are given as 'Milligrams equivalent per 100 gm of soil'. This is a convention in 'soil analysis' and is a measure of the substance which is in solution and available to the plant.

(ii) N = Nitrogen. P₂O₅ is the normal method of expressing Phosphorus or Phosphate. K = Potassium (commonly Potash and sometimes expressed as K₂O). Mg = Magnesium. Ca = Calcium.

As a slight digression from the main argument, it is well worth noting here the advantage of increasing the organic matter (humus) in sandy soils.

Work done by the Rothamsted Experimental Station on a sandy phase of the Bagshot beds growing *Calluna* at Wareham,⁵ Dorset, showed that the surface rooting layer had a greater cation exchange capacity than the next layer below

5. Bolton, J. and Coulter, J. K., 1965. 'Distribution of Fertiliser Residues in a Forest Nursery Manuring Experiment on a Sandy Podsol at Wareham, Dorset.' Rep. Forest. Res., pp. 90-92.



Presentation to Sir John Charrington by Mrs Ronald Gray,
May 5, 1971.



La Grillaia: Mme V. Colmegna's home (Switzerland).



Englewood Hospital Heather Garden, New Jersey, U.S.A.



Presentation to Mr Fred Chapple, at Harlow Car, August 22, 1971.
Foreground: Mr J. P. Ardron, Mr F. J. Chapple, Mrs C. I. Macleod.

because it contained more organic matter ($2\frac{1}{2}$ times as much). The results of this work emphasised how organic matter determined the cation exchange capacity of such a soil which contains little clay. They also showed that of the mineral nutrients, Potassium is most readily leached, 70 per cent of the Potassium added being lost.

Thus the addition of peat to sandy soils is valuable in two ways. It increases both the moisture retention and the availability of some of the mineral nutrients which are in short supply in such soils.

To revert to the above table, the important line in it is the Ratio A/B which clearly shows Site B—*Calluna* with Bracken was richer in all the nutrients quoted, and markedly so—five times as much—in respect of N and K than Site A and, it seems fair to argue, the increase in nutrient level was responsible for the increase in growth.

At Newbury, samples of *Calluna* foliage⁶ were taken at two-monthly intervals from all four sites during 1950 and 1951 and analysed for nitrogen. At Oxshott Common increased samples were taken from both sites and analysed for P and K as well as N. Quoting from the summary⁷:

‘It was observed that the luxuriance of the growth of the *Calluna* was apparently reflected in the nitrogen content of the foliage at all times of the year, except during spring when the position is complicated by the development of new foliage. However, the growth of the *Calluna* was not so clearly related to the concentration of potassium and phosphorus as it was to that of nitrogen.’

All the previous evidence strongly suggests that despite ample (even maximum) mycorrhizal association, the nutrient level, especially of nitrogen, can be too low.

Experience in my own garden supports the thesis that an increase in soil fertility leads to better growth. I garden on a difficult, though fortunately a neutral, clay with sand some two feet or more beneath so that drainage is not a problem. The clay has, as Fred Loads says, ‘plenty of “bant”’ about it. With the aid of acid peat, the soil has been brought to a pH 6.2 where the main *carneas* grow and to between pH 5.5 and 6.0 for the other species.

6. Aaron, J. R. Forest Record No. 53, p. 10.

7. *Ibid.*, p. 4.

E. cinereas do exceptionally well, growing to at least 50 per cent bigger than the normally quoted figures: 'Velvet Night', 'George Osmond' and 'John Eason' this year measured 22 inches in height with the single plant of 'John Eason' being 24 inches wide and 18 inches across. The heights of the following were: *E. x Williamsii* 22 inches, *E. vagans* 'St Keverne', 'Pallida' 30 inches, *E. ciliaris* 'Mrs C. H. Gill' 11 inches, *E. Tetralix* 'Alba Mollis' 12 inches and *Daboecias* 24 inches. Even the compact *D. cantabrica x azorica* seedling No. 3 ('Bearsden') is 12 inches with a spread of 24 inches \times 18 inches for one plant, a beautiful thick mat. Only the *Callunas* are unexceptional though quite satisfactory. I suspect they need rather more acid conditions with a pH around 5.0, and also sand, as the roots seem to have more difficulty in penetrating the clay than the other species. (All the above heathers are sheared over every year, usually at the end of March. The *Callunas* are mostly secateur pruned.)

There is a significant paragraph in the Bulletin⁸ which says: 'Experimental observations suggest that *Calluna* does not thrive in the presence of increased supplies of mineral nitrogen since this is in agreement with the field observations that *Calluna* loses its power to become dominant on richer soil and in the presence of applications of animal manure, both of which may be expected to be associated with increased supplies of mineral nutrients and especially nitrogen. It is also of interest that increased supplies of mineral nitrogen appear to result in diminished incidence of mycorrhizal associations.'

Is it possible to reconcile the contradiction between this paragraph and the evidence previously given?

The mycorrhizal association in *Calluna* appears to be a device of nature to enable *Calluna* to live—if not always to flourish, even when it is the sole dominant—in soils of low nutrient level and of such acidity as to make them intolerable to most other plant life. In areas of increased soil fertility and a higher pH, competition increasingly occurs from plants whose rate of growth can be considerably greater than that of heather, even when it is doing better, e.g. gorse, bracken, and even coarse grasses. It is therefore not

8. Handley, W. R. C. Bulletin No. 36, p. 56.

surprising that the heather ceases to be dominant *in the wild*; such competition would not occur in a garden and heather could then show the benefit of richer soil.

Again, as soil fertility increases, the *Calluna* can more easily get the nourishment it wants through its own roots and the need for help from the associated mycelium decreases so that a diminished incidence of mycorrhizal associations is not necessarily harmful unless the nitrogen addition is so heavy as to eliminate the mycelium entirely.

An experiment is wanted by some member(s) growing heathers on Bagshot sand or similar soil.

Acknowledgement.

I am grateful to the Forestry Commission for permission to use their publications.

Personal Names used for our Hardy Heathers (2)

D. McClintock

MacGregor's Variety (*Calluna*). (At Wisley by 1934.)

Maclise (*Calluna*). (Madison Hill, Conn. 1965.)

Mackaiana, *Mackaii*. Dr J. T. Mackay of Kirkcaldy and Dublin (1775-1862).

David McClintock (*ciliaris*). Finder, near Carnac, Brittany, 1962.

Mair's Variety (*Calluna*). (Britain by 1933.)

Marchant's Crimson (*carnea*). C. J. Marchant, nurseryman of Wimborne, Dorset. pre-1967.

Lilian Martin (*cinerea*). Mrs L. Martin, flower arranger, of Kingussie and Edinburgh, finder, pre-1970.

Martinezii (*Tetralix*). (Spain, pre-1838).

Queen Mary (*carnea*). Consort of King George V (1867-1953).

Maweana (*ciliaris*). George Maw, horticulturist, of Brosley, Staffordshire, finder, 1892 (1832-1912).

Mrs D. F. Maxwell (*vagans*). Wife of D. F. Maxwell, co-finder, c. 1923, of Maxwell & Beale.

H. Maxwell (x *Watsonii*). Father of D. F. Maxwell, 1925.

Mrs Maxwell (of Doncaster) (*vagans*). Mr Doncaster, finder, a retired engineer, who thought it an improvement on 'Mrs D. F. Maxwell'.

Robert Michael (*cinerea*). (Maxwell & Beale, 1934.)

Moore's Variety (*cinerea*). (England, by 1949.)

David Moss (*Daboecia*). Son of W. Moss of Maes y Gob, exhibitor 1968.

Valorian (*Calluna*). Valerie and Orrin Kolaga, children of owners of Mayfair Nurseries, Pennsylvania, 1966.

Joy Vanstone (*Calluna*). Mrs Vanstone of Lowson Ford, Warwickshire, pre-1963.

x Veitchii. Veitch & Sons, nurserymen, of Exeter, c. 1895.

Victoria (*cinerea*). Finder, on Maxwell & Beale's staff, 1923.

Vivellii (*carnea*). A. Vivell, landscape architect, of Otten, in Switzerland, finder, 1906.

Vivienne Patricia (*cinerea*). Mrs V. P. Letts, finder, pre-1965.

Prince of Wales (*carnea*). Heir Apparent of George V, now Duke of Windsor, b. 1894.

Miss Waterer (*vagans*). Miss C. Waterer, of Eden Valley, Ludgvan, Penzance, finder, pre-1934.

Tom Waterer (*cinerea*). (Found by G. D. Waterer, pre-1965.)

Rozanne Waterer (*cinerea*). Wife of Donald Waterer, 1951.

Miss Waters (*cinerea*). (England, pre-1963.)

Norman R. Webster (*x darleyensis*). Seedling in his garden then at Elgin, in 1950's.

A. G. T. White (*Calluna*). (Used for 'Beoley Gold', 1970.)

F. White (*x Watsonii*). Employee of Maxwell & Beale, 1931.

x Williamsii. P. D. Williams, of Lanarth, 1911.

P. D. Williams (*x Williamsii*). P. D. Williams, of Lanarth, 1910.

Mrs. E. Wilson (*Calluna*). Wife of nurseryman at Victoria, British Columbia.

Winifred Whitley (*cinerea*). Miss W. Whitley, of Broadstone, Dorset, pre-1933.

Thelma Woolner (*terminalis*). Wife of the finder in Sardinia, 1967, of Holdsworth, Devon.

John Wyane (*x darleyensis*). Owner of Hazlewood, near Lough Gill, Co. Sligo, Ireland, 1836.

Additions to 1970 list:

Branchy Anne (*Calluna*). (Derived from 'Sister Anne', 1970.)

Mrs Neill Collins (*Calluna*). Wife of Major C. N. Collins, of L. Eck, 1970.

Constance (*cinerea*). Mrs C. I. MacLeod, Secretary of the Heather Society, 1971.

Ingrid Bouter (*Calluna*). C. Bouter, daughter of Boskoop, raiser, 1968.

Hortulanus Janssen (*Calluna*). Curator at Wageningen, 1968.

Jenny (*Calluna*). (Letts, 1971.)

Alterations to 1970 list:

Alportii (*Calluna*). (England, pre-1852.)

Betty Baum (*Calluna*). Finder, employee of Jack Drake by 1966.

Baylay's Variety (*cinerea*). The late Mr J. W. Baylay of Solihull, finder.

Christina (*Calluna*). Mej. C. Rijnbeek of Boskoop, daughter of the introducer in 1960's.

French Gray (*Calluna*). (Not Francis Gray, which is a corruption.)

Mid-November in a Norfolk Heather Garden

B. G. London, Taverham, Norfolk

This is the time when one notices the change-over from summer to winter-flowering heathers. The long sprays of the double-flowered *Callunas* still holding dead flowers are drooping in the rain, whilst those from which the flowers have dropped look like small spears pointing to the sky. *C. v. 'Hibernica'*, being in shade, is the only one still in full bloom, though *E. ciliaris* Hybrid, 'Stoborough', 'David McClintock', and some from the wild still have a few lingering flowers, as also have *E. Tetralix* 'Alba Mollis' and the hybrid 'Dawn'.

E. carnea 'Eileen Porter' came into flower in late October, whilst 'King George', 'Praecox Rubra' and Mr McClintock's 'sport' from 'Springwood White' are all showing a lot of bloom. The buds on *E. lusitanica* are just starting to open but on a *E. mediterranea* seedling the lower branches are full of flower, and there are odd sprays of flower on most of the *E. x. darleyensis* varieties.

Most of the golden-foliage *Callunas* are commencing to change into their winter coats except for 'Beoley Gold' and 'Ruth Sparkes'; my favourite foliage variety at this time of year is 'Multicolor'.

In the summer of 1970 I sank a tall straggly Cape Heath hybrid, 'Limelight', from a pot, up to the tips in my sandy soil, placing a slab of rock in the centre to keep the branches spread out and conserve the moisture. Its yellow pitcher-shaped flowers began to appear in October, and I then covered it with a large cloche under which it continued flowering until March this year. I had scraped the bark, and even half-severed some branches in the hope it would layer, but so far it has not done so. It was uncovered all the summer and started flowering in late September. Now the branches are forming into a pyramid of bloom I have placed a cloche over half of the plant, leaving the other half exposed to see just how hardy it really is.

Report on Wisley Heather Trials, 1971

The following extracts from Wisley Trial Reports are reproduced by kind permission of the Council of the Royal Horticultural Society. The trials were inspected in June and August (with the exception of *Erica carnea* inspected in March and July), and the awards given were: First Class Certificate, F.C.C.; Award of Merit, A.M.; Highly Commended, H.C. Twelve plants of each stock were planted in November 1968.

CALLUNA VULGARIS

Forty stocks were sent for trial.

As a summer foliage plant

GOLDEN CARPET. A.M. (Raised and sent by Mr John F. Letts, Windlesham, Surrey.) Plant 4-5 in. high, spread 24 in. very prostrate, vigorous. Foliage cream, tipped golden yellow, flecked with orange and red in winter. Flowering from August 9th, 1971. (H.C. 1970.)

As a summer foliage and flowering plant

JOY VANSTONE. A.M. (Raised and sent by Mr J. W. Sparkes, Beoley, Worcs.) Plant 14-22 in. high, spread 24-28 in., erect, vigorous. Foliage bright green at base, changing to lemon yellow on top of shoots. Flower stems 11-14 in. long; flowers single, reddish-purple, anthers warm brown. Flowering from August 13th, 1971. (H.C. 1965.)

As a summer flowering plant

RADNOR. A.M. (Raised by Miss Appleby, and sent by Mr J. F. Letts.) Plant 10 in. high, spread 18 in., very compact, vigorous. Foliage bright dark green. Flowers double pink on stems 7-11 in. long. Flowering from June 30th, 1971.

ERICA CARNEA

Twenty-four stocks were sent for trial.

PINK SPANGLES. A.M. (Raised by Mrs P. H. Davey; introduced and sent by Treseders Nurseries Ltd, Truro, Cornwall.) Plant 6 in. high, spread 20 in., compact, vigorous.

Foliage dark green, light green at tips. Flowers single, ranging from white to near red-purple, stamens dark brown. Flowering from November 10th, 1970.

As a winter flowering and foliage plant

ANN SPARKES. A.M. (Raised and sent by Mr J. W. Sparkes, Beoley, Worcs.) Plant 3½ in. high, spread 12-14 in., compact, vigorous. Foliage bright green at base, yellow towards tips, tips bright red, tinged dark red and yellow. Flowers single, red-purple, stamens black. Flowering from December 24th, 1970.

(It should be noted lime was applied to the soil for this block of plants, to obtain success in cultivation. Wisley soil is very light, and certainly not alkaline.—*Editor.*)

ERICA CINEREA

Fifty-two stocks were sent for trial, three of which received F.C.C.

CAIRN VALLEY. F.C.C. (Raised by Mr J. Wilson, sent by Messrs Oliver & Hunter, Moniaive, Scotland.) Plant 8 in. high, spread 16-18 in., compact and vigorous. Foliage dark green. Flowers single, red-purple. (A.M. 1970.) Flowering from June 14th, 1970.

PINK ICE. F.C.C. (Raised and sent by Mr J. F. Letts, Windlesham, Surrey.) Plant 8 in. high, compact. Lush dark green foliage turning bronze-green in the spring. Flowers soft pink over a long period. Flowering from June 10th, 1970.

STEPHEN DAVIS. F.C.C. (Raised and sent by Mr P. G. Davis, Marley Common, Haslemere, Surrey.) Plant 7-8 in. high, spread 16½ in., compact, vigorous. Foliage dark green. Flowers single, near red-purple. Flowering from June 10th, 1970.

ATRO-SANGUINEA. A.M. (Sent by Messrs L. R. Russell Ltd, Windlesham, Surrey, and Mr J. W. Sparkes, Beoley, Worcs.) Plant 8 in. high, spread 20 in., fairly erect, vigorous. Foliage dark bluish-green. Flowers single, red-purple, flushed on underside. Flowering from June 10th, 1971.

DOMINO. A.M. (Sent by Regius Keeper, Royal Botanic Gardens, Edinburgh.) Plant 12-14 in. high, spread $21\frac{1}{2}$ in. erect, vigorous. Foliage dark green. Flowers single, white, flowering from June 18th, 1971.

LAVENDER LADY. A.M. (Raised and sent by Mr John F. Letts, Windlesham, Surrey.) Plant $8\frac{1}{2}$ in. high, spread 18-23 in., erect, vigorous. Foliage dark green. Flowers single, violet in colour, tipped purple-violet. Flowering from June 10th, 1971.

GOLDEN HUE. H.C. (Sent by Messrs Geo. Jackman Ltd, Woking, Surrey.) Plant 15 in. high, spread 19 in, very erect, vigorous, Foliage bright green, upper foliage tinged pale yellow with red tips. Flowers single, purple-violet. Flowering from June 17th, 1971.

ERICA VAGANS

Thirty-one stocks were sent for trial.

ST. KEVERNE. F.C.C. (Sent by Cmdr A. M. Williams, Launceston, Cornwall, and the Director, Liverpool University Botanic Garden, Wirral, Cheshire.) Plant 7-11 in. high, spread 15-19 in., erect, vigorous. Foliage dark green with lighter green tips. Flowers single, reddish tinged white, anthers dark chocolate-brown. Flowering from July 19th, 1970.

KEVERNENSIS ALBA. A.M. (Sent by the Director, University of Liverpool Botanic Gardens.) Plant $9\frac{1}{2}$ -15 in. high, spread $15\frac{1}{2}$ - $22\frac{1}{2}$ in., compact and vigorous. Foliage dark green. Flowers single, white, stamens light brown.

As a winter foliage plant

VALERIE PROUDLEY. A.M. (Raised by Mr Brian Proudley, and sent by Aldenham Heather Nursery, near Watford.) Plant $4\frac{1}{2}$ in. high, with spread of $9\frac{3}{4}$ in., compact and vigorous. Foliage rich bright green tinged golden at base of shoots, changing to golden yellow towards tips of shoots. (Plants were inspected on March 2nd for winter-foliaged varieties.)

As a summer foliage plant

VALERIE PROUDLEY. A.M. (Raised by Mr Brian Proudley, introduced and sent by Aldenham Heather Nursery. N.B.: Mr Proudley is now at St Briavels, Lydney, Glos.) Plant 6 in. high spread, $12\frac{3}{4}$ in. compact and vigorous. Foliage bright green at base of shoots turning to lemon yellow towards tips. Flowers white, stamens dark red when young, becoming chocolate brown later. Flowering from September 1st, 1971.

DABOECIAS

Fifteen stocks of Daboecia were grown in the trial.

SNOWDRIFT. F.C.C. (Sent by Messrs Geo. Jackman & Son, Woking, Surrey.) Plant 13 in. high, spread of $21\frac{1}{2}$ in., erect, vigorous. Foliage bright green. Flowers $3/10$ in. diameter, $2/5$ in. long, white. Flowering from June 6th, 1971.



Criticisms of the Year Book will be welcomed. We can't please all our members all the time but want to please most of you most of the time, and I shall not know if you are getting what you want unless you tell me, so please do. (The Editor, 1966 Year Book.)



Erica scoparia is known as the 'Besom heath' but in this country it was *Calluna vulgaris* which was most used for brushes and besoms. Old wood is too brittle and the young long wiry wood is used (T. L. Underhill in 'Heaths and Heathers'.) (Heather besoms have come into use again in Sussex, and are for sale in shops.—Ed.)

Recent Writings on Heathers 1971

D. McClintock

- ABBOTT, CLARICE. 'Why We Grow Heathers.' *Northern Gardener*, XXV (6), 206-7.
- ANON. 'Mix-up Heathers.' *Gardeners' Chronicle*, May 14th, p. 31.
- A NORTHERN CORRESPONDENT. 'Heather Burning.' *The Times*, August 9th, p. 3.
- ARGLES, G. K. and ROWE-DUTTON, P. 'Wilt and Die-back Diseases of Ericas.' *Nurseryman and Garden Centre*, Vol. 151, pp. 485-90, 513-15, 541-5 and 684.
- BAKER, H. A. 'Taxonomic Notes on Erica.' *Jnl. S. African Bot.*, 37 (3), pp. 169-76.
- BARCLAY-ESTRUP, P. 'Cyclical Processes in a Heath Community, III. Microclimate in Relation to the Callunas Cycle.' *Jnl. Ecol.* 59 (1), pp. 143-66.
- BATEMAN, G. 'Feeding Container-grown Nursery Stock.' *Gardeners' Chronicle*, March 19th, pp. 22-24.
- BECKETT, K. A. 'Heath and Heather Specialist.' *Gardeners' Chronicle*, 170(1), July 2nd, p. 28.
- BODDY, F. A. 'Colour from July until November.' *Gardeners' Chronicle*, May 14th, pp. 31-2.
- BOERNER, F. 'Calluna vulgaris var Erikae.' *Immergrüne Blätter*, Vol. 10, p. 16.
- BRANDER, P. E. 'Calluna.' *Haven*, 71 (2), pp. 38-39.
- BURROWS, B. 'Heath, Heather and Ling.' *Amateur Gardening*, June 12th, p. 35.
- F. E. H. 'Fine Heather Garden once a Wilderness.' *Guernsey Evening Press*, July 28th.
- GAGGINI, J. B. 'Heath and Heather Propagation and Production.' *Gardeners Chronicle*, 169 (13), pp. 37-41.
- HAHN, E. *Anzucht v. Freiland-Eriken in der Luneburger Heide Gartenwelt*, 71 (6), p. 137, March 20th.
- HICKMANN, H. 'Erica purpurea, I. Ein Porträt.' *Immergrüne Blätter*, pp. 17-18.
- JORGENSEN, P. K. 'Formering af Lyng.' *Haven*, 71 (3), p. 83.
- JONES, H. E. 'Computer Studies of Plant Growth, II. The Relationship Between Transportation and Uptake of Iron in *E. cinerea* and *E. Tetralix*.' *Jnl. Ecol.* 59(1); pp. 167-178.
- JONES, H. E. 'Computer Studies of Plant Growth, III: The response of *Erica cinerea* to waterlogging.' *Ibid.* 59 (2), pp. 583-92.
- KITCHER, F. 'Calluna vulgaris, Kriechend Wachsend Sorten.' *Immergrüne Blätter*, Vol. 9, pp. 31-34.
- MCCCLINTOCK, D. 'Recent developments in the knowledge of European Ericas.' *Botanische Jahrbücher*, 90 (4), pp. 509-523.
- MCCCLINTOCK, D. 'Some Aspects of Hardy Heathers.' *Jnl. R. H. S.*, XCVI (9), pp. 418-26.
- MCCCLINTOCK, D. 'Daboecia cantabrica 'Praegerae'.' *Irish Nats. Jnl.* 17 (1), 24.
- M.-L. 'Heaths for Foliage.' *Jnl. Scot. Rock Garden Club*, XVI (3), 48, p. 237.
- SAUTHOFF, W. 'Untersuchungen über die "Knollenkrankheit" der Eriken.' *Phytopath. Zeitschrift*, Vol. 69, pp. 17-30.
- SYNGE, K. C. 'Erica carnea in Cheshire.' *Northern Gardener*, Vol. XXVI (1), p. 13.
- THURSTON, G. 'Winter's Wonderplants.' *Amateur Gardening*, January, 9th, p. 20.
- TIVY, J. 'Grouse and Grouse Moors.' *Scot. Field Study Assoc. A. Rep.*, 1970, pp. 124-131.
- VAN DE LAAR, H. J. 'Witbloeiende Callunas.' *Groen*, April, pp. 81-3.
- WEBBER, R. 'Here's to Heather.' *Flower and Garden* (Kansas City), July 1st, 1970, pp. 14-33.
- WHITE, D. 'Heathers to Bloom All Winter.' *Popular Gardening*, December 4th, pp. 16-17.

In addition there have been various articles in the Bulletins of our sister publication *Ericultura*.

LIST OF MEMBERS

December, 1971

*Indicates members willing to show their gardens by appointment.

†Retail Nursery. ‡Wholesale Nursery.

Group 1. Scotland.

- AITKEN, J. N., Braehead, Greenburn Road, North Bucksburn, Aberdeen, AB2 9UA.
 BALLOCH, M. W., Ardmeanach, Fortrose, Ross-shire.
 BARR, MISS K. H., 3 Balgair Road, Balfron by Glasgow.
 BELL, J. ROGER, 37 Newtyle Road, Paisley, Renfrewshire.
 BEZZANT, MR and MRS R. J., 24 North Grange Road, Bearsden, Glasgow.
 †BLACK, MRS M. (Sheriffston Gardens), Leuchars House, by Elgin, Moray.
 BOYD-HARVEY, MRS L. C., Boonslie, Dirleton, N. Berwick, East Lothian.
 BROOKE, DR A. KELLIE, Masonfield, Minnigaff, Newton Stewart.
 BRIEN, R. J., Pitcairngreen Heather Farm, Perth, Scotland.
 BROWN, R. A., Hillcrest, Dunbar Street, Lossiemouth, Morayshire.
 BURNET, F. R., Enterkin, Kilmaccolm, Renfrewshire.
 CAMERON, MISS E. K., Caldermill Hill, nr. Strathaven, Lanarkshire.
 CARMICHAEL, SIR JOHN, K.B.E., Magicwell, Balmullo, Leuchars, Fife.
 CASSELS, K. A. H., Scougal, Sandbank, Dunoon, Argyll, PG23 8PD.
 CHILDS, J. N., University Hall Cottage, St Leonards Road, St Andrews, Fife.
 CHRISTIE, J. W., The Nurseries, Inverness Road, Forbes, Morayshire.
 COLLINS, MRS M., Inverchapel, by Dunoon, Argyll.
 CONNELLY, P., 1 Melrose Avenue, Balgonie, Paisley, Renfrewshire.
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 CRAIGIE, W., 14 Mountskip Road, Brechin, Angus.
 *DOBSON, WM. S., 20 Barnshot Road, Colinton, Edinburgh 13.
 Dobson, W. S. (Jun.), The Hill, Broomieknowe, Lasswade, Midlothian.
 DRAKE, JACK, Insiach Nursery, Aviemore, Inverness-shire.
 DUNCAN, T. A., Rhuroin, Shildaig, by Strathcarron, Ross-shire.
 EVERETT, R. J., 2 Old Kirk Road, Garvock Hill, Dunfermline, Fife.
 FOSTER, MRS E. M. P., Bruar Cottage, Mayfield Road, Inverness-shire.
 FOWLER, C., 6 Airlie Street, Brechin, Angus.
 GIBB, K. F., Seaways, St. Colme Road, Dalgety Bay, Fife.
 GORDEN, MRS I. J., 5 West Albert Road, Kirkcaldy, Fife.
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 HALKETT, A. C., Kevoch Lea, Kevoch Road, Lasswade, Midlothian.
 HALL, MRS M., Leyden Old House, Kirknewton, Midlothian.
 HEPBURN, G., 34 Laws Drive, Kincorth, Aberdeen.
 HUGHES, MRS I. M., 23 Lochend Drive, Bearsden, Glasgow.
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 IMRIE, I., 40 Stamperland Hill, Clarkston, Renfrewshire.
 JAMIESON, MISS M. A. W., Broadacres, Kinross.
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 LINDSAY, P., Cluny Castle, Newtonmore, Inverness-shire.
 LUNN, MRS, Blawlowan, Buchanan Castle, Drymen, Stirlingshire, Scotland.
 LYLE, R. C., Grange Nursery, Alloa, Clackmannanshire.
 MCCRINDLE, K. D., 1 Drummond Rise, Dunblane, Perthshire.
 MCFARLANE, MR and MRS A. D., 14 Livingstone Park, Kilsyth, by Glasgow.
 MCINTYRE, MRS R., Stuckenduff Road, Shandon, Helensburgh, Dunbartonshire.
 MACROBERT, MRS H., Durisdeer, Kilmaccolm, Renfrewshire.
 MARKS, B. MC K., 17 Banchory Avenue, Inchinnan, Renfrewshire.
 †MARYFIELD NURSERIES (N. C. and J. D. Lyle), Leslie, Fife.
 MONTGOMERY, BRIG. E. J., C.B., C.B.E., Kinlochruel, Colintraive, Argyll.
 MOUNSEY, E. R., Rough Knowe, Barrhill Road, Dalbeattie.
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 PATTENDEN, H., Kirkbank, Glenlochar, Castle Douglas, Kirkcudbrightshire.
 PEARCE, MRS A., 33 Blackwood Road, Milngavie, Glasgow.
 PIPER, C. P., Crawley House, Springfield, Fife.
 PANTON, J. S., 7 Hilton Circle, Aberdeen.
 PARKER, R. C., Woodcliffe, Newtonmore, Inverness-shire.
 PONTON, J. R., The Gardens, Kirknewton, Midlothian.

PULLAR, W., 36 Gleneagles Avenue, Glenrothes, Fife.
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 REGIUS KEEPER, Royal Botanic Garden, Edinburgh 3.
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 SCOTT, T. M., Clonburn, Resaurie, Inverness.
 SEGGIE, T. P., J. P., Castramon, Dunscore, Auldirth, Dumfries-shire.
 SHAND, W. A., St Edmunds, Milngavie, Glasgow.
 SHERPHERD, MISS M., The Dales, Braidwood, by Carluke, Lanarkshire.
 SHIER, N. T., 89 Garvock Hill, Dunfermline, Fife.
 STEEN, MR and MRS M., 87 East King Street, Helensburgh, Dunbartonshire.
 STITT, LT.-COL. and MRS J. H., Drumcairn, Blairgowrie, Perthshire.
 STRACHAN, J., 6 Queen Street, Perth.
 TANSLEY, W., 5 Albany Drive, Burnside, Rutherglen, Glasgow.
 TAYLOR, P. C., Craigdonald Lodge, Easter Dalguise, Dunkeld, Perthshire.
 THOMAS, J. D. E., 132 Everard Drive, East Milton, Glasgow N.I.
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with compliments from The Secretary

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 CHALLONER, T. A., New Leys, High Ash Farm, Meriden, nr Coventry, Warks.
 CLARK, P. W., The Haven, 36 Bridgnorth Road, Stourton, nr Stourbridge, Worcs.
 CLAYTON, MRS M. D., 11 Richmond Road, Sutton Coldfield, Warks.
 COOKES, G. J., Little Froome, 2 Drayton Lane, Fenny Drayton, nr Nuneaton, Warks.
 COOPER, B. H., 7 Corinne Close, Rednall, Birmingham, B45 8EJ.
 COOPER, K. V., Abbeywood House, Newstead Abbey Park, Linby, Notts.
 COUGHLIN, MRS R., 17 Alvechurch Highway, Lydiate Ash, Bromsgrove, Worcs.
 CROW, MRS A. F., 63 Longwood Road, Aldridge, Staffs.
 DAESDONK, MRS J. VAN, 13 Station Road, Barton-u-Needwood, Burton-on-Trent, Staffs.
 DAVIES, A. E., 760 Old Lode Lane, Solihull, Warks.
 DAVIES, J. GWYN, Midland Wallboards Ltd, 120 Beakes Road, Smethwick, Warley.
 DEARLING, MR and MRS T. B., 1 Swinburne Close, Balderton, Newark-on-Trent, Notts.
 EDWARDS, MRS M., Ashlands, Stoneleigh Road, Gibbet Hill, Coventry, Warks.
 ELWIN, R. C., Two Ways, 12 The Lawns, Whatton-in-the-Vale, NG13 9EZ, Notts.
 EVERETT, MR and MRS M., Hill Cottage, Wynnatts Way, Abberley, Worcs.
 FEARN, MR and MRS F. A., 82 Nottingham Road, Long Eaton, NG10 2AU.
 FINCH, A. R., 25 Windrush Grove, Selly Oak, Birmingham, B29 7SU.
 FINDLAY, A. R., 32 Lichfield Road, Coleshill, nr Birmingham.

- FORRESTER, MISS M. H., Field House, 12 Ladywood Road, Four Oaks, Sutton Coldfield.
- FREARSON, W. D., 268 Holbrook Lane, Coventry, Warks.
- GIBBON, MR and MRS J. W., 59 Loxley Road, Glenfield, Leicester, LE3 8PH.
- HANSON, F. D., Crossways, 43 Wellington Road, Bromsgrove, Worcs.
- HEADLEY, W. H., 43 Craighill Road, Knighton, Leicester.
- HORSLEY, N., 12 Perlethorpe Avenue, Mansfield, Notts.
- HURLEY, MRS I., Old Grove Lodge, Llangrove, Ross-on-Wye, Herefordshire.
- JONES, MR and MRS E. T., 16 Manor Road, Hanbury Park, Worcester, WR2 4PD.
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- JOYCE, B. D., 19 Wykwane, Great Malvern, Worcs.
- KENDALL, P. J., 45 Halesowen Road, Halesowen, Worcs.
- *LAW, R., Meadows, Draycote, nr Rugby, Warks.
- LAWSON, F., 495 Loughborough Road, Birstall, Leics.
- LEAD, W. L., 22 Imperial Avenue, Gedling, Notts.
- LIDGATE, MISS M. B. S., The Nutshell, Richards Castle, Ludlow, Salop.
- LOVATT, MRS H. M., Roman Way, Roman Road, Little Aston Park, Sutton Coldfield.
- LUNN, M. H., 46 Redland Grove, Carlton, Nottingham, NG4 3EU.
- MCDOWELL, DR L. A., 34 Michael Drive, Birmingham, B15 2GL.
- MCLELLAND, MR and MRS J., 238 Chester Road, Streetly, nr Sutton Coldfield.
- MANN, J. M., 7 Niven Close, Allesley, Coventry, CV5 9BJ.
- MARTIN, G. W., 42 Clarence Road, Chilwell, Beeston, Nottingham, NG9 5HY.
- MARTIN, J. E., Elder Tree Lane, Ashley, nr Market Drayton, Salop.
- MONETHER, G. A. K., Greenfields, Charlton, nr Wellington, Telford, Salop.
- OAKMAN, C. W., 24 Yelverton Avenue, Evington, Leicester, LE5 6XR.
- PEET, J., 19 Stephenson Close, Glascote Heath, Tamworth, Staffs.
- PEPPER, J., 292 Lightwood Road, Longton, Stoke-on-Trent, ST3 4JP.
- PERKS, H. S., 15 Leonard Road, Wollaston, Stourbridge, Worcs.
- PRINGLE, W. H., 56 Littleheath Lane, Lickey End, Bromsgrove, Worcs.
- QUAYLE, MR and MRS S. K., Loen, Bewdley, Worcs.
- RADLEY, A. D., 20 Long Close, West Hagley, Stourbridge, Worcs.
- ROGERS, DR K. B., 38 Woodbourne, Augustus Road, Birmingham, B15 3PH.
- ROPE, MR and MRS D. H. E., Clouds, 38 Vernon Crescent, Ravenshead, Nottingham, NG15 9BL.
- ROUGHAN, J. M., 27 Smith Street, Warwick.
- ROUND, MRS D. M., Kenelm, How Caple, Hereford.
- SHACKLOCK, MRS P., Applegarth, Paddock Close, Quorn, Leics.
- SHENTON, E., Lindisfarne, 2 Heathdene Close, Longton, Stoke-on-Trent.
- SIMONS, J. P., Swinford House, Swinford, Rugby, Warks.
- SPARKES, J. W., Beech Wood Nurseries, Gorcott Hill, Redditch, Worcs.
- STANLEY, P. J., 20 Corbridge Road, Sutton Coldfield, Warks.
- STREET, H., Selby, 14 Barker Road, Sutton Coldfield.
- SUMMERS, MRS A., Hop Pole Cottage, Greenhill Lane, Hallow, nr Worcester.
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- TABRAMHILL GARDENS, Newstead Abbey Park, Linby, Nottingham, NG15 8GD.
- TRUMAN, MRS E., 22 Queen's Road, Walsall, Staffs.
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- TURNER, MR and MRS A. S., 167 Cole Valley Road, Birmingham, B28 0SG.
- TURNER, E., 2 Newport Road, Hinstock, Market Drayton, Salop.
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- WHALLEY, T. W., Highfields, Newstead Abbey Park, Linby, Nottingham.
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- WILLIAMS, T. VAUGHAN, The Priory, Pillerton Priors, Warwick.

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- BROWN, E. C., 52 Gatehill Road, Northwood, Middx.
- BROWNE, MRS J. M., Gordonbush House, Egypt Lane, Farnham Common, Bucks.
- †‡BRUMMAGE, N. H., Heathwoods Nursery, Fakenham Road, Taverham, Norwich
NOR 53X.

- BRYCE, J. LINDSAY, Church Farm, Mortimer, Reading, RG7 3NU.
 BUCKMASTER, A., 3 Rothschild Road, Linslade, Leighton Buzzard, Beds.
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 CHASON, D. M., 4 Primrose Lane, Waterbeach, Cambs.
 CHITSON, MR and MRS R. C., 54 Epping Road, Toothill, Ongar, Essex.
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 CLEEVELY, R. J., 3 Duke's Drive, Sarum Chase Estate, Silchester, nr Reading.
 COWIE, A. T., 6 Maiden Erlegh Drive, Earley, Reading, RG6 2HP.
 CRANE, MRS H. H., Highmead, Cheney Street, Eastcote, Pinner, Middx.
 CRAWFORD, MRS B., 19 Greenways, Abbots Langley, Herts.
 DICKINS, F. E. R., Copperfields, Silchester Road, Silchester, Reading, Berks.
 DICKINSON, J. F., Richmond, 12 Mills Close, Taverham, Norwich, NOR 53X.
 DISS, MRS H. M., 500 Felixstowe Road, Ipswich, Suffolk.
 DODGSON, MRS F. W., Kaikoura, 127 Heath Park Road, Gidea Park, Essex.
 DRING, S. J. Beacon Ridge, 24 Beacon Lane, Little Bealings, Woodbridge, Suffolk.
 DUNCAN, A. MCK., Windy Ridge, 32 Parsons Heath, Colchester, Essex.
 EDWARDS, MR and MRS R. G., 11 Pamela Gardens, Eastcote, Pinner, Middx.
 ERITH, MISS B. M., Frog Meadow, Dedham, Colchester, CO7, Essex.
 FINDLAY, T. H., Director, Windsor Great Park Gardens, Berks.
 FINCH, MR and MRS J. E., The Barn, Wargrave Road, Twyford, Berks.
 FLICK, L. P., 109 Cranborne Waye, Hayes, Middx.
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 FRYE, MR and MRS M. G., The Willows, Poors Lane, Daws Heath, Thundersley, Essex.
 GILES, MRS K. M., 5 Kitsbury Terrace, Berkhamsted, Herts.
 GILMOUR, J., Director, University Botanic Garden, Cambridge.
 GODDEN, B. A., 159 Putnoe Street, Putnoe, Bedford.
 GOLLER, A. E., 10 Monksmead, Borehamwood, Herts.
 GOODE, MRS D., 9 Marcus Gardens, Thorpe Bay, Southend-on-Sea, Essex.
 GRAVER, MRS D., 43 Havers Lane, Bishops Stortford, Herts.
 GREEN, MRS B., 143 Auckland Road, Ilford, Essex.
 GROVE, DR W. P., Windrush, Nightingales Lane, Chalfont St Giles, Bucks.
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 HEDDEN, MR and MRS L., 115 Browning Road, Hillyfield, Enfield, Middx.
 HENLEY, MRS F. H., Gustard Wood House, Wheathampstead, Herts.
 HILL, B. L., Bracken, Church Road, Apsley Heath, nr Bletchley, Bucks.
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 HUXTABLE, E. J., Dunsteads, Ingatestone, Essex.
 HYDE, G. W., 69 St Nicholas Walk, Brandon, Suffolk.
 INWOOD, MRS G. I., 88 Alicia Gardens, Kenton, Harrow, Middx.
 LACEY, MRS E., 58 The Meadway, Cuffley, Herts.
 LAWRENCE, C. R., Southernwood, Hargham Road, Attleborough, Norfolk.
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 LEWIS, MR and MRS P. N., 24 Theydon Park Road, Theydon Bois, Essex.
 LEWIS, R. J., 88 Gallants Farm Road, East Barnet, Herts.
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 MCLEAN, A. G. N., Calver Lodge, Frithwood Avenue, Northwood, Middx.
 MERRIN, R. R., 10 Brownfield Way, Blackmore End, Wheathampstead, Herts.
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 MILSTED, REV. IVAN S., The Manse, 1 Millwood Road, Hounslow, Middx.
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 MITCHELL, R., Murray Lodge, Burtons Lane, Chalfont St Giles, Bucks.
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 NEWBY, L. G., 44 Beavers Lane, Hounslow, Middx.
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 ROSS-LEWIN, MAJOR F. H. W., The White House, St Olaves, Great Yarmouth, Norfolk.
 ROUT, J. H., 34 Spixworth Road, Old Catton, Norwich, NOR 320.
 SANDROCK, F. E., Meadowsweet, Halstead Road, Kirby le Soken, Frinton-on-sea, Essex.
 SHEPPARD, MRS J. B., 24 South Approach, Moor Park, Northwood, Middx.
 *SMITH, HARRY, 9 Merilies Close, Westcliff-on-sea, Essex.
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 BENN, THE HON. LADY, High Field, Pastens Road, Limpsfield, Oxted, Surrey.
 BERRY, S. J., 29 Woodside Road, Bickley, Bromley, Kent, BR1 2ES.
 BESSENT, P., Felbrigg, Glenesk Road, Eltham, SE9.
 BILLINGTON, W. H., Hazelglen, Russells Crescent, Horley.
 BOLT, H. W., Kyrenia Cottage, 36 Sheephose, Farnham, Surrey.
 BOND, J. D., Wick Nursery, Wick Road, Englefield Green, Egham, Surrey.
 BONNEY, MR and MRS S. J., 12 Old Oak Avenue, Chipstead, Coulsdon, CR3 3PG.
 *BOWERMAN, MR and MRS A. H., Champs Hill, Coldwaltham, Pulborough, Sussex.
 BOXALL, MR and MRS, Gilridge, Sandy Lane, Kingswood, Surrey.
 BRADE, W. H., 99 Warren Road, Reigate, Surrey.
 BRAY, B., 5 Cardinal Avenue, Morden, Surrey.
 BRICKELL, C. D., The Lilacs, Wisley, Ripley, Surrey.
 BROWN, MRS C. R., Penn Cottage, 1 Downs Road, Seaford, Sussex.
 BUCKLEY, MAJ. R. M., Woodlands, Greenhill Road, Otford, Kent.
 BUDD, P. J., 14 Collington Rise, Bexhill-on-Sea, Sussex.
 BURKE, DR S. A., Orchard Cottage, Manor House Lane, Effingham, Leatherhead.
 *CAMERON, MR and MRS R., Great Comp, Borough Green, Sevenoaks, Kent.
 CARPENTER, M. J., 91 Denver Road, Dartford, Kent.
 *CHARRINGTON, SIR JOHN and LADY, High Quarry, Crockham Hill, Edenbridge, Kent.
 CHARRINGTON, MRS N. D., Street House, Thursley, Godalming, Surrey.
 CLAYTON, I., Dunedin, 70 Keymer Road, Hassocks, Sussex.
 CLAYTON, O. J., 8 Chittenden Cottages, Wisley, Ripley, Surrey.
 CLIFFORD, LT.-COL. J. A., Bindons, 8 The Avenue, Lewes, Sussex.
 COOPER, MRS A. I., Lockhursthatch, Hurtwood Lane, Shere, Surrey.
 COPAS, MR and MRS B. A., 13 Pinewood Close, Shirley, Croydon, CRO 5EX.
 DANIELLS, MISS R. W., Wacousta, The Bishops Avenue, London, N.2.
 DAVIS, P. G., Timber Tops (Nursery), Marley Common, Haslemere, Surrey.

- DEAVES, C. W., The Warren, Compton Way, Moor Park, Farnham, Surrey.
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 DICKENSON, MRS A., 8 Windyridge Close, Wimbledon, S.W.19.
 DOLLEY, F. H., Sanderson, Dolleys Hill Nurseries, Normandy, Guildford, Surrey.
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 DUGUID, MRS J., Flat 6, Holbrook Park, Horsham, Sussex.
 EDWARDS, N. J., Westfield, Holbrook Lane, Chislehurst, Kent.
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 EVANS, W., 35 Vale Drive, Horsham, Sussex.
 FALCONER, B. J., Merristwood, 409 Woodham, Weybridge, Surrey.
 FILMORE, MISS E., Coolmoyne, 5 Copsewood Way, Bearsted, Maidstone, Kent.
 FOREMAN, B., 11 Whiteleaf Road, Caterham, Surrey.
 FORTY, MRS J., Wyke Cottage, Clandon Road, West Clandon, Guildford, Surrey.
 FREEMAN, G. W., Lavender Walk, Moat Lane, Sedlescombe, Sussex.
 FRYER, MISS B. FIELD, Collington Lodge, Collington Grove, Bexhill-on-Sea.
 GENT, LADY G. M., Little Paddock, Fairmile Lane, Cobham, Surrey.
 GILES, MRS J. W., 43 North Park, Eltham, London, SE9 5AW.
 GODBOLT, MRS E., Altadena, Southview Road, Crowborough, Sussex.
 GRAY, J. M., Nettlecombe, Westbere, Canterbury, Kent.
 *GRAY, MRS RONALD, Southcote, Hindhead, Surrey.
 GORDEN-LENNOX, REAR-ADMIRAL A., Fishers Hill, Midhurst, Sussex.
 *HALE, H. S., Ashgarth, 11 Hill Road, Haslemere, Surrey.
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 HARRISON, MRS O. B., 23 Woodville Gardens, Ealing, London, W.5.
 HICKS, DR A. R. H., 106 Balcombe Road, Horley.
 HILL, W. J., 540 Loose Road, Maidstone, Kent.
 HORN, L. T., 77 Cradlebridge Drive, Hythe Road, Ashford, Kent.
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 KENT, C. H. I., Peters Oak, Wellington Avenue, Virginia Water, Surrey.
 KERRICH, G. J., Heath Crest, Westcott, Dorking, Surrey.
 KIMBER, MRS P., Sandways, Upper Bourne Lane, Boundstone, Farnham, Surrey.
 KING, MRS E., Spindlewood, Glebe Lane, Tilford, Surrey.
 KIRK, T. S., 17 Lathom Road, East Ham, London, E.6.
 *KITCHEN, MRS F. B., Northdown, Grassy Lane, Sevenoaks, Kent.
 KLEINWORT, MRS E. G., Heaselands, Haywards Heath, Sussex.
 KNAPP HILL NURSERY LTD, Woking, Surrey.
 LARLHAM, B. G. A., 243 Bellenden Road, London, SE15 4DQ.
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 LEA, MRS F. E., 113 Aldsworth Avenue, Goring-by-Sea, Sussex.
 LEACH, MRS J. R., Caesars Cottage, Camp End Road, St Georges Hill, Weybridge.
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 MCCLINTOCK, D., Bracken Hill, Platt, Kent.
 MACLEOD, MRS B., Kittswood, Three Gates Lane, Haslemere, Surrey.
 MACLEOD, MRS C. I., Yew Trees, Horley Row, Horley.
 MACROSTIE, SQN-LDR J. S., Ayios, Nikolaos, BFPO 53, Cyprus.
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 MALIN, B. R., 88 Findon Road, Worthing, Sussex.
 MANSEL, D., Meadow Cottage Nursery, Beaconsfield Road, Chelwood Gate, Haywards Heath, Sussex.
 MARTIN, MR and MRS C. F., Woodpeckers, Hillcrest, Southborough, Tunbridge Wells.
 MEAD, MRS R. F., Hawthorns, Langshott Lane, Horley, Surrey.
 MEDLYCOTT, B. R., 102 Copse Avenue, West Wickham, Kent.
 MELLOWS, W. T., 54 Bramley Avenue, Coulsdon, Surrey.
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 MOYS, MRS N. J., Long Spinney, Clavering Walk, Cooden, Bexhill-on-Sea.

- NAPIER, G. B., Frith Manor, Lingfield Road, East Grinstead, Sussex.
 NAVARA NURSERY LTD, 12 Guildford Road, Lightwater, Surrey.
 NEYLAND, B., 54 West Way, High Salvington, Worthing, Sussex.
 NICHOLSON, H. L., Farm Cottage, Westcott Road, Dorking, Surrey.
 OSBORN, J. C., Wisdom House, Delmonden Lane, Hawkhurst, Kent.
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 PENRITH, T. J., 104 Tonbridge Road, Maidstone, Kent.
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 RANDALL, MR and MRS A. C. F., Trees, 4 Park Avenue, Farnborough Park, BR6 8LL.
 RAWINSKY, G. B., Primrose Hill Nursery, Haslemere, Surrey.
 RAYNER, J. N., Fairbourne, 28 The Rise, Sevenoaks, Kent.
 REYNOLDS, B. C., 17 Grange Park, Horsell, Woking, Surrey.
 RICE, F. B., 16 Winern Glebe, Byfleet, Surrey.
 ROBERTS, A. Wyn, 21 Trewall Gardens, Bromley, Kent.
 RUSSELL, J. L., L. R. Russell and Co, Richmond Nurseries, Windlesham, Surrey.
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 *RYAN, MISS I. M. N., The Little, Sandy Lane, Reigate Heath, Surrey.
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 SIMMONS, F. L., 76 Bolton's Lane, Pyrford, Woking, Surrey.
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 SPEEDY, B., 45 Farncombe Road, Tunbridge Wells, Kent.
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 STERLING-MANSON, C., La Lodola, Seale Hill, Reigate, Surrey.
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 STYLES, MR and MRS H., Arran, Windermere Road, Lightwater, Surrey.
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